REMARKS/ARGUMENT

Regarding the Claims in General:

Claims 57-62, 64-65, 67-78, 81-82, 84-86, 88-100, and 102-106 are now pending. By this communication, applicants propose to amend claims 59, 60, 81, 86, 88-89, 92, 94, 97, 103, and 104 to improve the form and/or grammar thereof, and to better conform to idiomatic English and/or U.S. claim practice. Applicants further propose to amend claims 62, 84, 100, 102, and 104-106 to better highlight certain features of the invention.

The amendments are not intended to, and will not narrow the scope of claims.

Regarding the Objections to the Claims and the Rejection under 35 U.S.C. 112:

Amendments to claims 59, 62, 65, 92, 97, and 104 address the objections and the rejection stated in Sections 1 and 3 of the outstanding Office Action.

Regarding the Prior Art Rejections:

Reconsideration and withdrawal of the outstanding rejections under 35 U.S.C. 103 based on the Peters et al. U.S. Patent 5,550,375 (Peters), the Baxter U.S. Patent 4,111,717 (Baxter), the Grinberg et al. U.S. Patent 4,922,116 (Grinberg), the Dschen Published German application 41 10 653 (Dschen), and the Chen and Larsson articles are respectfully requested.

The Examiner has repeated, essentially without change, the rejections stated in the previous Office Action. Independent apparatus claim 102 remains rejected as unpatentable over Peters in view of Dschen and the Chen article. When this rejection was first given, applicants responded by pointing out that claim 102 recited a gas detector comprising a gas cell formed of a plastic base plate and a hollow plastic chamber extending from a surface of the base plate and an electromagnetic radiation detector formed on a three-dimensional topographical structure integral with the base plate and located *inside* the chamber.

In the final rejection, the Examiner referred to col. 6, line 64 through col. 7, line 12 of the Peters patent. This describes an example in which the shaped part includes additional cavities (not illustrated in Figs 2A and 3) situated in front of the radiation entrance and exit slits, and that when cover plate 12 is placed on the shaped part, the detectors are above these additional cavities. The

Examiner appears to be saying that because the gas cavity is contained in the same shaped part as the additional cavities, Peters' detector is inside the gas cavity (see outstanding Office Action, page 12, third paragraph).

The cited text, however, clearly shows that Peters' embodiment shown in Fig. 2A has three separate cavities, i.e., a first cavity within which the gas is located, a second cavity separated from the first cavity by the radiation entrance slit 3 and a third cavity separated from the first cavity by exit slits 4 and 10. Only the first cavity encloses gas. Detectors 8 and 11 are *outside* slits 4 and 10 respectively, and are therefore in the *third* cavity.

Claim 102, as it appeared before the final rejection, clearly emphasized the location of the radiation detector *inside* the gas containing cavity. The Examiner's attempt to equate applicants' detector in the gas cavity to Peters' detectors in a separate cavity formed from the same body of material as the gas cavity, adjacent to *but physically isolated from* the gas cavity, is a gross distortion of claim 102 and of the present invention.

In recognition that Peters does not teach or suggest the details of the radiation detector of the present invention, the Examiner has relied on the German application of Dschen and the Chen article (obviously the same individual). These do disclose forming thermoelectric devices by depositing two metal coatings on a three-dimensional structure from two different angles. However, the devices disclosed are used as catalytic converter sensors in a high temperature environment (e.g., 300° C), and for detection of large temperature differences, and there is no suggestion that such a device would be useful in an application such as that of Peters, where the object is to measure infrared absorption at one of the junctions.

Applicants remain of the view that it would not be obvious to use the sensors of the secondary references in Peters' gas analysis device, and the Examiner is respectfully referred to the comments in the response to the previous Office Action in this respect.

Nevertheless, even if the Dschen/Chen sensor is used in Peters, the same fatal deficiency exists in the combination as existed in Peters alone: claim 102 is still not met because the electromagnetic radiation detector would still not be located ***inside the gas cell.*** In Peters, the detector is outside the gas cell, and there is no suggestion in the Dschen application, the Chen publication, or in any of the other cited prior art to place the detector inside the gas cell.

As suggested above, it is respectfully submitted that the Examiner has interpreted the claimed description of the location of the sensor far too broadly. In an effort to obviate this, however, but without narrowing the scope of claim 102 in any respect, it is proposed to amend the claim to describe the overall construction and the location of the radiation detector in somewhat different terms. In particular, it is proposed to amend claim 102 to read:

> a flat base plate formed of a plastic material;
>
> a gas cell formed by the base plate and a hollow body of plastic material extending from a surface of the base plate, the base plate and the hollow body being constructed to define an enclosure for receiving a volume of gas to be evaluated. . .and
>
> an electromagnetic radiation detector which is formed integrally with the base plate and which is comprised of:
>
> a three-dimensional topographical structure formed on the base plate and located within the enclosure . . .

While Peters does have a gas cell formed by a base plate and a hollow body extending from the base plate, and which form an enclosure for receiving a volume of gas to be evaluated, neither Peters alone nor Peters in combination with Dschen/Chen teaches or suggests an electromagnetic radiation detector actually located within the gas cell, i.e., within the gas-containing enclosure.

Likewise, even if Dschen/Chen discloses an electromagnetic radiation detector comprised of "a three-dimensional topographical structure formed on the baseplate. . . ", there is no teaching or suggestion for locating the topological structure within the gas-containing enclosure.

The proposed amendments do not change the scope of claim 102 because they only use different words to describe more clearly features which were always present in the claim. If the Examiner remains of the view that claim 102 still does not clearly require the detector to be within the same enclosure as the gas being analyzed, he is respectfully requested to suggest language which will make this clear.

The proposed changes in claim 102 are reflected in changes proposed for claim 104. Again, it should be noted that these amendments do not change the scope of claim 104, but are only being proposed to describe with different words, features which were always present in the claim.

Thus, claim 104 now recites a method for forming a gas detector comprised of a gas cell comprised of a base plate and a hollow body attached to the base plate, and constructed to define an enclosure for receiving a volume of gas to be analyzed . . . and an electromagnetic radiation detector comprised of a three-dimensional thermoelectric array integral with the base plate. The method comprises the steps of:

> forming a master structure as a pattern for the base plate, the pattern including, *in an area corresponding to a portion of the base plate which will be inside the enclosure,* a three-dimensional structure corresponding to a topographical structure on which the thermoelectric array is to be mounted;
>
> forming a master structure as a pattern for the hollow body;
>
> forming the base plate and the hollow body using the respective master structures . . .
>
> assembling the detector by attaching the hollow body to the base plate with the sensor positioned in the enclosure . . .

As explained above, the device of Peters et al. does not have a radiation detector inside the gas cell, i.e., the enclosure for the gas, and motivation for modifying Peters et al. to produce such a structure is not found in Dschen/Chen, or in any other prior art.

Thus, even if Peters, teaches a "LIGA" process for making a master pattern, neither Peters alone, nor Peters in combination with any other prior art, teaches or suggests employing this process to form a base plate including a topological structure *which will be located inside the gas enclosure.* As the Examiner will recognize, the claim must be read as a whole. Claim 104 recites specific process steps, and also what the steps accomplish, i.e., producing a base plate which bears a radiation detector in a location which will be inside the gas enclosure when the device is assembled. The Examiner can not ignore that essential feature of the recited step.

Again, if the Examiner does not consider that the proposed amendments to claim 104 unambiguously specify that the radiation detector is to be formed so it will be located in the gas enclosure, he is respectfully requested to propose alternative phraseology.

Claims 81-82, 84-86, and 88-100, 103, and 105 are dependant on claim 102, and claims 57-62, 64-65, 67-78, and 106 are dependent on claim 104. These claims are patentable for all the

reasons stated above. In addition, these claim recite features which, in combination with the features of their respective parent claims are neither taught nor suggested in the cited references.

In view of the foregoing, favorable reconsideration, entry of the proposed amendment, and allowance of this application are respectfully solicited.

I hereby certify that this communication is being transmitted . . .

Lawrence A Hoffman
Name of applicant, assignee or Registered Representative

Signature

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Respectfully submitted,

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